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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LANIER, BENJAMIN E

ART UNIT	PAPER NUMBER
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2132

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/644,446		CARROLL, DENNIS J.	
	Examiner		Art Unit	
	Benjamin E. Lanier		2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 18-21 is/are allowed.
- 6) ☒ Claim(s) 1-15, 17 and 22-45 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 6, 13, 14, 17, 24, 30, 36, 42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not specify how the state machine representation is separated into color segments or how the color segments are reassembled to produce the state machine. Therefore, one of ordinary skill in the art would not have been able to make and use the present invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6, 13, 14, 17, 24, 30, 36, 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 24, 30, 36, and 42 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the elements that provide the separation and resemblance of the state machine representation based on the color groupings.

The specification details on pages 22-23, paragraph 45, how the separation and reassembling of

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the color segments is vital to the operation of the present invention, because if done incorrectly, the original data contained be recovered.

6. Claims 6, 13, 14, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the steps that provide the separation and resemblance of the state machine representation based on the color groupings. The specification details on pages 22-23, paragraph 45, how the separation and reassembling of the color segments is vital to the operation of the present invention, because if done incorrectly, the original data contained be recovered.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1-4 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to a state machine representation, which is merely data or nonfunctional descriptive material because a state machine representation is a mere arrangement of data. One may only patent something that is a machine, manufacture, composition of matter or a process, See, e.g. Alappat, 33 F.3d at 1542, 31 USPQ2d at 1556; In re Warmerdam, 33F.3d 1354, 1358, 31 USPQ2d 1754, 1757 (Fed. Cir. 1994). A state machine representation is a representation of a machine, but not an actual machine. The subject matter courts have found to be outside of, or exceptions to, the four statutory categories of invention is limited to **abstract ideas**, laws of nature and natural phenomena. These three exclusions recognize that subject matter that is not a practical application or use of an idea is not patentable.

See, e.g., Rubber-Tip Pencil Co. v Howard, 87 U.S. (20 Wall.) 498, 507 (1874) (“idea of itself is not patentable, but a new device by which it may be made practically useful is”); Mackay Radio & Telegraph Co. v. Radio Corp. of America, 306 U.S. 86, 94, 40 USPQ 199, 202 (1939) (“While a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be”). While abstract ideas are not eligible for patenting, methods and products employing abstract ideas may well be (MPEP 2106.01).

9. Claims 5, 7, 8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to a method of securing an encryption state machine representation. For claims including such excluded subject matter to be eligible for patent protection, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomenon. Diehr, 450 U.S. at 187, 209 USPQ at 8 (“application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”); Benson, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it “has no substantial practical application”). A claimed invention is directed to a practical application of a 35 U.S.C. 101 judicial exception when it:

- (A) “transforms” an article or physical object to a different state or thing; or
- (B) otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

The claims do not have a practical application by physical transformation. For purposes of an eligibility analysis, a physical transformation “is not an invariable requirement, but merely one example of how a mathematical algorithm [or law of nature] may bring about a useful

application.” AT &T, 172 F.3d at 1358-59, 50 USPQ2d at 1452. If USPTO personnel determine that the claim does not entail the transformation of an article, then USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result (MPEP 2106).

The result of the claims is merely a state machine representation, and therefore the claims cannot be considered to have a tangible result because a practical application of the state machine representation has not been claimed.

10. Claims 9-12, 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to a process that lacks a practical application, because there is not a useful, concrete, and tangible result (MPEP 2106). The result of claims do not provide a useful, concrete, and tangible result with respect to ‘encrypting a set of data values’ as claimed. Claim 13 contains the required useful, concrete, and tangible result, because the result of the claim is a string of values that corresponds to encryption of the data values and provides a mechanism to decrypt the data values.

11. Claims 22-33 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to a general system whose components have been described in the specification as potentially being software only (Page 23, paragraph 45). Computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program’s functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is

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a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

12. Claims 22, 25-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to a process that lacks a practical application, because there is not a useful, concrete, and tangible result (MPEP 2106). The result of claims do not provide a useful, concrete, and tangible result with respect to 'encrypting a set of data values' as claimed. Claim 23 contains the required useful, concrete, and tangible result, because the result of the claim is a string of values that corresponds to encryption of the data values and provides a mechanism to decrypt the data values.

13. Claims 34-45 are drawn to a program product stored on a recordable medium, which permit the computer program's functionality to be realized, and is thus **statutory**. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035. The claimed recordable medium was not specifically defined in the specification and therefore has been interpreted in the conventional manner, which includes only computer readable storage mediums.

14. Claims 34, 36-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to a process that lacks a practical application, because there is not a useful, concrete, and tangible result (MPEP 2106). The result of claims do not provide a useful, concrete, and tangible result with respect to 'encrypting a set of data values' as claimed. Claim 35 contains the required useful, concrete, and tangible result,

because the result of the claim is a string of values that corresponds to encryption of the data values and provides a mechanism to decrypt the data values.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Katz, Contemporary Logic Design. Referring to claims 1, 4, Katz shows a state machine with nodes grouped such that nodes with different outputs are adjacent (Figure 8.7, page 387), which meets the limitation of a plurality of nodes grouped into color segments, wherein directly connected nodes of the plurality of nodes are grouped into different color segments. The figure shows transition vectors between the nodes (Figure 8.7, page 387), which meets the limitation of a set of transition vectors for interconnecting the plurality of nodes, wherein each of the set of transition vectors is assigned a unique value, each of the plurality of nodes has at least one of the set of transition vectors. The figure also shows termination vectors ($Y = 0,1$ from node B, and $X = 0$ from node D), which meets the limitation of a set of termination vectors, wherein each of the set of termination vectors interconnects one of the plurality nodes with a termination point.

Referring to claim 2, Katz discloses that the nodes are uniquely identified alphabetically (Figure 8.7, page 387), which meets the limitation of each of the plurality of nodes is assigned a unique node identifier and an output value.

Referring to claim 3, Katz discloses that the nodes have a corresponding output value (Figure 8.7, page 387), which meets the limitation of the output values represent possible data values.

Allowable Subject Matter

17. Claims 16, 18-21 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art discloses systems and methods for encrypting data using state machines, but do not disclose or make obvious the claimed method and system of encrypting data using state machines that records the path through a state machine, where the nodes of the state machines are segmented such that no nodes belonging to the same group can be directly connected, that correctly yields that data. This recorded path is utilized by a decoder to traverse through the state machine using the identified transition vectors, and obtaining the data by identifying states in the state machine using values that are not correlated with a transition vector in the state machine.


Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin E. Lanier whose telephone number is 571-272-3805. The examiner can normally be reached on M-Th 7:30am-5:00pm, F 7:30am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Benjamin E. Lanier